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Ronald Thomas

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EXAMINER

DANIELS, MATTHEW J

ART UNIT

PAPER NUMBER

1791

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/806,552	<b>Applicant(s)</b> THOMAS, RONALD	
	<b>Examiner</b> MATTHEW J. DANIELS	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Election/Restrictions***

1. All previous restriction requirements are withdrawn.

### ***Allowable Subject Matter***

2. The indicated allowability of claims 23-32 is withdrawn in view of the newly discovered reference(s) to Kurihara (US 5,612,067). Rejections based on the newly cited reference(s) follow.

### ***Specification***

3. The use of the trademark "Direct Logic" and "Proportionair" have been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.
4. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

### ***Information Disclosure Statement***

5. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless

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the references have been cited by the examiner on form PTO-892, they have not been considered.

6. Additionally, if Applicant's ANP-series gas pin or Applicant's LGC series gas assist controller constitute prior art under the "on sale," "public use," or "printed publication" portions of 35 USC 102(b), then this information, which may be material to patentability, has not been submitted for the record.

### *Priority*

7. The priority claim in the specification should be amended to reflect the fact that 10/085,372 has now published as a U.S. Patent.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 37 and 39** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. **As to Claim 37**, the claim does not recite any structural relationship between "distinct fluid sources" and the apparatus of Claim 34. **As to Claim 39**, the

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claim does not set forth any structural relationship between the source of water and the apparatus.

9. **Claims 40, 45, and 48-53** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. With respect to claims 45 and 52, the specification does not disclose calculating. With respect to claims 40 and 48, the specification does not disclose exhausting. Other claims are rejected by dependence.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 1-4 and 7-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrell (US 3,709,644) in view of Gosdin (US 5,762,861). **As to Claim 1**, Farrell teaches a mold body for forming a part (32), a runner (30), a reservoir connectable to a runner (44), and a valve adjacent a mouth of the runner which can be moved to connect the reservoir to the runner (Fig. 2) or in which the runner is blocked (Fig. 1). Farrell is silent to an injection pin. However, such pins are known and conventional for producing hollow parts. See item 7 in Fig. 1 of Gosdin. It

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would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the pin of Gosdin into the Farrell process in order to provide hollow spaces in a part which would decrease the weight of the part. **As to Claims 2 and 9**, Farrell provides a runner which is connected to the mold at an upstream end. By providing a pin in the mold, Gosdin inherently provides a pin at a downstream end. **As to Claim 3**, this claim pertains to an intended use, and the apparatus of Farrell and Gosdin could be used in the claimed manner. **As to Claims 4, 7, and 10**, see Farrell, item 54 and 60. **As to Claim 8**, this claim pertains to an intended use or manner of using, and the apparatus of Farrell and Gosdin could be used in the claimed manner. **As to Claim 11**, the reservoir of Farrell can be changed in volume (98).

11. **Claims 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrell (US 3,709,644) in view of Gosdin (US 5,762,861), and further in view of Weinbrenner (US 3,073,533). Farrell and Gosdin teach the subject matter of Claim 1 above under 35 USC 103(a). **As to Claims 5 and 6**, Farrell and Gosdin are silent to the hydraulic and pneumatic actuation. However, in view of the solenoid activation of Farrell (60) it is submitted that other activation methods would have been obvious. For example, Weinbrenner teaches that in addition to activation of valves by solenoids, it is also known to activate valves pneumatically or hydraulically (4:7-11). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the various actuation methods of Weinbrenner into the Farrell process because one skilled in the art would recognize these various actuation techniques as obvious substitutes for the solenoid activation of Farrell.

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12. **Claims 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Gosdin (US 5,762,861) in view of Yamazaki (US 4,923,666). **As to Claim 12**, Gosdin teaches the claimed process comprising injecting a plastic into the mold cavity through a supply (Fig. 1, item 12), injecting fluid from the fluid source into the melt (Fig. 1, item 7), selectively expelling (2:66-3:2) a portion back into the supply (12) and the reservoir (3). Gosdin is silent to the cooling performed after injection of plastic and before injecting fluid. However, Yamazaki teaches a process in which the resin within the mold immediately starts to cool and shrink, and during the cooling and shrinking, the pressurized gas is introduced (3:20-25). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Yamazaki into that of Gosdin because cooling upon introduction of the resin would lead to a reduction in cycle time.

13. **Claim 13-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurihara (US 5,612,067). **As to Claims 13 and 17**, Kurihara teaches a process in which a resin material is injected into a mold cavity (Fig. 3), and a pressurized gas is injected into the cavity (Fig. 4), and selectively connecting the mold cavity with a reservoir (Fig. 4, item 7). Although the order of performing the claimed steps appears to be different than disclosed by Kurihara, it is submitted that rearrangement of these process steps would have been obvious. In particular, it would have been obvious to use the gas applied through the port (9) in Kurihara in order to expel material into the reservoir (7). **As to claims 14 and 19**, Kurihara provides a valve (33). **As to Claim 18**, the holding time would have been a matter of optimization in the Kurihara process and one would have selected the claimed time in order to produce a fully filled cavity. **As to Claims 15,**

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**16, and 20-22**, in applying the pressure through port the port of Kurihara (9), it is submitted that plastic would flow in all directions, namely downstream into item 7 and upstream into item 5.

14. **Claims 23-26, 29-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurihara (US 5,612,067). **As to Claims 23 and 28**, Kurihara teaches a process which includes injecting a resin melt into a cavity (Fig. 3), injecting a core fluid into the resin (Fig. 4, item 9), and injecting a control fluid into a reservoir in communication with the cavity (Fig. 5, item 37). Although Kurihara does not expressly teach a thermoplastic material, since the material of Kurihara is obviously capable of melting, it is submitted that a thermoplastic would have been an obvious choice of resins. **As to Claims 24-26 and 29-32**, Kurihara expels resin into the reservoir (Figs. 3-5) and the control fluid would obviously oppose the flow and rate of flow of melt into the reservoir.

15. **Claims 27 and 32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurihara (US 5,612,067) in view of Myers (US 4,657,715). Kurihara teaches the subject matter of Claims 23 and 28 above under 35 USC 103(a). As to Claims 27 and 32, Kurihara is silent to water. However, water is a conventional material for creating voids in thermoplastic materials. For example, Myers teaches injecting water which acts as a physical blowing agent in a polymer melt at 150 to 250 C (2:32-61). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the water of Myers into the Kurihara process because (a) water would have been an obvious alternative for creating the voids required by



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Kurihara, or (b) one would have recognized that the water would also assist in cooling the article, reducing cycle time.

16. **Claims 33-35, 37-39** rejected under 35 U.S.C. 103(a) as being unpatentable over Kurihara (US 5,612,067) in view of Gosdin (US 5,762,861). **As to Claims 33 and 34**, Kurihara teaches a mold body having a cavity (Fig. 3, items 3, 4), an inlet for injecting plastic (5), and two fluid injection ports (9, 37) at spaced apart locations, one being in the reservoir (7) fed from discrete sources (25, 51). Kurihara is silent to the use of pins. However, pins are a conventional substitute for the ports of Kurihara. See Gosdin, Fig. 1, items 7. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Gosdin into that of Kurihara because (a) the pins are a known substitute for the ports of Kurihara, as demonstrated by the references, or (b) the pins of Gosdin would penetrate into the article to provide the hollow region at the desired location. **As to Claims 35, 37-39**, Kurihara provides a first fluid injection port between the inlet (5) and the reservoir (7), and distinct fluid sources (25, 51), which could be used with water and connected to the pins of Gosdin as set forth above.

17. **Claim 40-53** are rejected under 35 U.S.C. 103(a) as obvious over Kurihara (US 5,612,067). **As to Claims 40, 41, and 48**, Kurihara teaches injecting plastic to fill the mold cavity (Fig. 3) which would apply a packing pressure to the mold cavity, injecting pressurized gas (Fig. 4, V), holding the pressure of the gas and the plastic in the mold cavity (Fig. 4), and allowing a portion of the material to be expelled into a secondary cavity (7) by opening a valve

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(33) in a runner (6). It is submitted that solidification, exhaustion, and removal are inherent in the Kurihara process. It is unclear whether the reference teaches the same order of injecting the gas, holding the pressure of the gas, and expelling. However, one of ordinary skill in the art would have found it obvious to rearrange these process steps in order to progressively move material into the reservoir (7). **As to Claims 42, 43, 49, and 50**, Kurihara provides a thicker section in which the gas is introduced (Fig. 4, V or M), and Fig. 3 depicts the packing pressure. **As to Claims 44, 46, 47, and 51**, these limitations pertain to an obvious duplication of parts already shown by Kurihara (7), however, providing multiple reservoirs would have been obvious in view of the Kurihara process. **As to Claims 45 and 52**, to the extent that these claims pertain to a thought process, they non-statutory subject matter. It is submitted that one would have calculated the volume of the reservoir (7) in fabricating the mold of Kurihara. **As to Claim 53**, Kurihara opens a valve member (33).

18. **Claim 34 and 36** are rejected under 35 U.S.C. 103(a) as obvious over Yasuie (US 4,129,635) in view of Gosdin (US 5,762,861). **As to Claims 34 and 36**, Yasuie teaches an apparatus in which there is a mold body (5), an inlet (corner where 5 and 6 meet), a runner (6) which defines a flow path between a reservoir (7) and the cavity (5), and a fluid injection pin (11) in fluid communication with the reservoir (7). Yasuie is silent to the injector pin in the cavity. However, injector pins in the cavity are taught by Gosdin (7). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Gosdin into that of Yasuie (a) in order to provide articles with hollow portions

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therein, which would reduce the weight of the parts, or (b) in order to provide separate cavities in the part.

***Response to Arguments***

19. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection and the withdrawal of the restriction.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew J. Daniels/  
Primary Examiner, Art Unit 1791  
6/12/09